

# IMSA College & Academic Counseling

**IMSA**, a **three-year public residential educational program** for students (grades 10-12) talented in mathematics and science is a founding member of the National Consortium for Specialized Schools of Science, Mathematics and Technology. As an **educational laboratory**, IMSA designs and tests innovative programs and methods to share with other teachers and schools in Illinois and beyond.

IMSA transforms mathematics and science education through an integrative approach to teaching and learning. Advanced courses in mathematics, science, the arts and humanities emphasize connections within and across the disciplines. Students learn to integrate content and skills, demonstrating broad knowledge of important concepts. As apprentice investigators, students engage in individual and group research in all curricular areas. The Academy offers three program pathways for sophomores and juniors: the **Core Program, Integrative Learning Experience (ILE); and Perspectives**. Each pathway is designed to provide the same essential content and rigor but varies the instructional approach. The Core Program offers stand alone courses in mathematics, biology, chemistry, physics, English, and Social Science. The Perspectives pathway also offers stand-alone courses but is supplemented by an integrative seminar which meets once a week. The ILE pathway includes an integrative three semester course encompassing biology, chemistry, physics and earth and space science. On-going research examines the effects of the three pathways on developing integrative thinkers and ethical leaders.

IMSA students develop *plans of inquiry*. Plans focus on learning and investigation around meaningful questions of interest to the student. Faculty and staff serve as mentors in this process. IMSA uses a modified block schedule, containing 20 20-minute modules per day. Classes extend from two to five modules and meet two to four times each week. On Wednesdays, students participate in independent and group research projects, special seminars and symposia, academic field trips and *mentorship*. In mentorship, students conduct on-site research in fields such as immunology, neonatology, environmental engineering and computer technology with scientists and scholars in corporations, educational institutions and laboratories in the Chicagoland area.

Like IMSA's academic program, the residential life program supports the mission of the Academy and has specific student learning outcomes. The residential life curriculum includes concepts such as community, communication, self-awareness, personal accountability, wellness, relationships, and diversity. A comprehensive Navigation program connects activities and services in a more holistic, integrated manner. The program helps each student navigate her or his way through the IMSA living and learning experience for all three years.

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- *IMSA adheres to the standards set forth in the Statement of Principles of Good Practice of the National Association for College Admission Counseling.*
- *IMSA is accredited by the North Central Association of Colleges and Schools.*
- *ACT/CEEB Code Number: 140177*



# IMSA Course Offerings

Visit [www.imsa.edu/team/cac](http://www.imsa.edu/team/cac) for course descriptions and other information.

## Courseload Requirements

Students must enroll in a minimum of 5 academic courses each semester. Fine Arts and Wellness do not constitute academic courses. Students taking 6 courses may take one course pass/fail. Students taking 7 courses must take one course pass/fail. If a performing Fine Arts course is taken as an 8th course, it must be taken pass/fail, and one other course pass/fail. All courses that serve to fulfill graduation requirements must be taken for a grade.

## Mathematics

### †Core Courses:

Mathematical Investigations I, II, III, IV  
AB Calculus I, II

- or -

BC Calculus I, II, III

†proficiency testing is required before appropriate placement

### Math Electives:

Advanced Geometry  
Advanced Problem Solving  
Introduction to Algebraic Structures I, II  
AP Computer Science  
Assembly Language Programming  
Computer Seminar  
Data Analysis  
Differential Equations  
Discrete Mathematics  
Exploring Math Topics Using Mathematica™  
Geometry I/II  
Introduction to C++  
Introduction to Pascal  
Multivariable Calculus  
Number Theory  
Problem Solving  
Independent Study  
Senior Research Project

## Science\*

### Core Courses:

Integrated Science, I, II +  
- or -

Sophomore Chemistry  
Sophomore Physics  
University Biology

### Biology Electives:

Biotechnology  
Ecology  
General Microbiology  
Genetics  
Human Anatomy and Physiology  
Pathogenic Microbiology  
Patterns of Biological Diversity  
Plants and People  
The Big Bang to Now

### Chemistry Electives:

Advanced Chemistry  
Biochemistry  
Facets of Thermodynamics  
Methods in Chemical Research  
Organic Chemistry I, II  
Survey of Organic Chemistry

### Physics Electives:

Advanced Physics  
Astrophysics  
Calculus-based Physics/Mechanics  
Calculus-based Physics/Electricity & Magnetism  
Electronics  
Geophysics  
Observational Astronomy  
Topics in Modern Physics

### Other Courses:

Independent Study  
Science, Society and the Future  
(0.5 credit in Science,  
0.5 credit in Social Science)  
Scientific Writing and Data Analysis  
Junior Project in Science  
Senior Research Project

## Wellness Education

Sophomore Wellness  
Wellness Electives  
Independent Wellness  
Independent Study  
Senior Research Project

## Social Science

### Core Courses:

American Studies  
World Studies

### Senior Social Science Electives:

European History  
International Relations  
Macroeconomics  
Microeconomics  
Politics and Society  
Psychology  
Science, Revolution, Ideology and the Arts (year long)  
(1.0 credit in Social Science,  
1.0 credit in English)  
Science, Society and the Future  
(0.5 credit in Social Science,  
0.5 credit in Science)  
Topics in Psychology  
Topics in Recent U.S. History  
Utopia/Anti-Utopia (year long)  
(1.0 credit in Social Science,  
1.0 credit in English)  
Independent Study  
Senior Research Project

*All are honors courses.*

## English

### Core Courses:

Sophomore English  
Junior English

### Senior English Electives:

Belief in Question in Modern Literature  
Topics in American Literature:  
Modern Poetry (1 semester)  
Modern Poetry (year long)  
Modern Irish Literature  
Modern World Literature (African-American Identity)  
Portraits of Creativity  
Russian Consciousness in Literature  
Science Revolution, Ideology and the Arts (year long)  
(1.0 credit in English,  
1.0 credit in Social Science)  
Short Story: Theory and Practice  
The Idea of the Individual  
Utopia/Anti-Utopia (year long)  
(1.0 credit in English,  
1.0 credit in Social Science)  
Independent Study  
Senior Research Project

## Foreign Language

French I, II, III, IV, V  
German I, II, III, IV, V  
Japanese I, II, III  
Russian I, II, III  
Spanish I, II, III, IV, V  
Independent Study  
Senior Research Project

## Fine Arts

Art Design I  
AP Music Theory  
Ceramics  
Chamber Choir  
Concert Choir  
Photography  
Symphonic Band  
Symphonic Wind Ensemble  
Symphony Orchestra  
Independent Study: Art  
Independent Study: Music  
Senior Research Project

\*All Science courses except Calculus-Based Physics, Pathogenic Microbiology, and Science, Society and the Future are laboratory-based.

\*Interdisciplinary program integrating content from physics, chemistry, biology, earth and space science, and technology.



# Graduation Requirements

## Class of 1999

*In light of IMSA's selective admission process and in order to promote collaborative exploration and discovery, the Academy does not provide grade point averages or class rankings. All courses are taught at the honors level.*

### Mathematics/Science 8.0 credits

8.0 credits in Mathematics and Science which must include:

- minimum 4.0 credits in science including at least 1.0 credit above the introductory required courses in chemistry, physics and biology or integrated science.
- at least 3.0 credits in mathematics which include core courses that move toward completion of calculus. Students are to be enrolled in a mathematics course each semester.
- at least one additional credit in mathematics or science.

### Social Science 2.5 credits

American Studies, World Studies and one semester elective.

### English 3.0 credits

Sophomore English, Junior English and one senior elective each semester of senior year.

### Foreign Language 2.0 credits

2.0 credits taken during two of the three years at the Academy, including completion of an Academy Level II course.

### Fine Arts 0.5 credit

### Wellness

Fulfilled by completing a three-year program in Wellness Education

### Senior Research/Independent Study Project

An optional research project or independent study is available on a by approval basis only for 0.25-2.0 credits per semester.

### Community Service and Campus Work Service

Each student must satisfactorily complete 80 hours of community service and 300 hours of campus work service.

### Total Graduation Requirements

Equal 16.0 credits for grades 10-12 at the Academy. This allows for flexibility in student choices during the senior year, including time for in-depth study in particular courses and topics of interest. Generally, one credit is equal to one year of study.

## Grade Distribution

### Class of 1999

Fall 1997 Grade Distribution

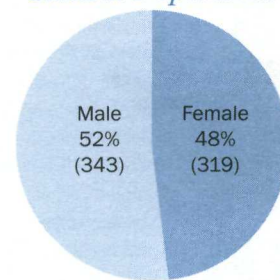
Course	Number	A	B	C	D	P	F	Other (Inc. WF etc.)
Mathematics								
Core	191	39%	42%	18%	1%	0%	0%	0%
Electives	26	42%	19%	4%	4%	31%	0%	0%
Science Core								
University Biology	124	61%	34%	4%	1%	0%	0%	0%
Integrated Science	71	62%	31%	7%	0%	0%	0%	0%
Science Electives								
Chemistry	56	39%	39%	7%	2%	11%	2%	0%
Physics	7	71%	29%	0%	0%	0%	0%	0%
English Core								
Junior English	195	66%	28%	5%	1%	0%	0%	0%
Social Science Core								
World Studies	195	72%	26%	2%	0%	0%	0%	0%
Foreign Language	198	55%	33%	9%	0%	3%	0%	0%
Fine Arts	114	32%	24%	1%	0%	43%	0%	1%

Spring 1998 Grade Distribution

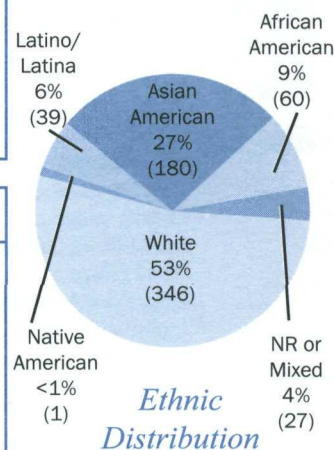
Course	Number	A	B	C	D	P	F	Other (Inc. WF etc.)
Mathematics								
Core	193	42%	38%	15%	4%	0%	0%	1%
Electives	62	61%	21%	3%	0%	15%	0%	0%
Science Core								
University Biology	123	59%	31%	10%	0%	0%	0%	1%
Science Electives								
Biology	63	52%	35%	2%	2%	10%	0%	0%
Chemistry	71	37%	34%	4%	3%	20%	0%	3%
Physics	60	60%	23%	2%	0%	15%	0%	0%
English Core								
Junior English	195	70%	29%	1%	0%	0%	0%	1%
Social Science Core								
World Studies	195	66%	26%	3%	1%	0%	0%	4%
Foreign Language	197	56%	30%	12%	0%	2%	0%	0%
Fine Arts	100	25%	20%	7%	0%	48%	0%	0%

Data rounded to the nearest whole percent.

### Total 1998-1999 Student Population



### Gender



### Ethnic Distribution

- ◆ Mean SAT I composite score for IMSA seniors was 1413, 396 points above the national average for college-bound seniors.
- ◆ Mean ACT composite score for IMSA seniors was 31.1, 10.1 points above the national average for college-bound seniors.
- ◆ Of IMSA students taking the Advanced Placement Examinations, 86% scored "3" or better, and 64% scored "4" or better.
- ◆ Mean SAT II score for IMSA seniors taking the Mathematics-Level IIC Test was 749, 100 points above the national average for college-bound seniors. Mean IMSA score for the English Writing SAT II test was 665, 96 points above the national average for college-bound seniors.
- ◆ A total of 51 members of the IMSA Class of 1999 were named Semifinalists in the National Merit and National Achievement Scholarship Programs. Additionally, 48 were named National Merit and National Achievement Commended Students. Three students were recognized as National Hispanic Scholars.

## *Preliminary Scholastic Assessment Test (PSAT) Scores* *Class of 1999 - Middle 50% Ranges and Means*

	IMSA Mean (N=191)	IMSA Middle 50% Range	Illinois Mean	National Mean
Verbal	63.7	57.9-69.5	49.2	48.9
Math	70.0	65.9-74.1	49.8	48.9
Writing Skills	63.5	57.3-69.7	50.1	49.5

## *Scholastic Assessment Test (SAT I) Scores* *Class of 1998 - Middle 50% Ranges and Means*

	IMSA Mean (N=208)	IMSA Middle 50% Range	Illinois College-Bound Senior Mean	All-College Bound Senior Mean
Verbal	683	640-730	564	505
Math	730	690-780	581	512

## *American College Testing (ACT) Scores* *Class of 1998 - Middle 50% Ranges and Means*

	IMSA Mean (N=192)	IMSA Middle 50% Range	Illinois Mean	National Mean
English	29.7	27.4-32.0	20.7	20.4
Mathematics	32.7	30.9-34.5	21.4	20.8
Reading	31.4	28.6-34.2	21.5	21.4
Science Reasoning	30.4	27.9-32.9	21.4	21.1
Composite	31.1	29.3-32.9	21.4	21.0



## SAT II Scores

Class of 1998 - Middle 50% Ranges and Means

Test	Total IMSA Scores Reported	IMSA Mean	IMSA Middle 50% Mean	Illinois Mean	National Mean
English					
Writing	151	665	600 - 720	628	569
Literature	19	NA	NA	643	591
Mathematics					
Level I C	7	NA	NA	617	574
Level II C	147	749	710-800	692	649
Science					
Biology	17	NA	NA	644	600
Chemistry	61	669	620 - 720	650	606
Physics	50	675	610 - 720	664	639

Note: Two or fewer students took SAT II tests in the following subjects: American History, World History, Chinese with Listening, French, French with Listening, German with Listening, Japanese with Listening, Spanish, and Spanish with Listening.

## Advanced Placement (AP) Examination Scores for IMSA Students: 1998

AP Grade	US History	Biology	Chemistry	Computer Science A	Computer Science AB	Economics-Micro	Economics-Macro	English Language	English Literature	European History	French Language	German Language	Government/Politics-US	Government/Politics-Comp	Calculus AB	Calculus BC	Physics B	Physics C-Mech	Physics C-E&M	Psychology	Spanish Language	Statistics	Total Grades Reported	Percent of Total
5		9	11		9		1	3	5			1			4	66		4	3		1	117	35	
4	1	12	8		3	4	4	8	7	3					3	21		9	8	1	2	1	95	29
3		8	15	1	2	2	1	3	2		3	1	1		2	16	1	6	8		2		74	22
2	3	7	9		2			1			1	3		1	4	5			1				37	11
1		1	5												2			1					9	3
Total	4	37	48	1	16	6	6	15	14	3	4	5	1	1	13	110	1	20	20	1	4	2	332	100
%3 or higher	25	78	71	100	88	100	100	93	100	100	75	40	100	0	69	94	100	95	95	100	100	100	86	

One IMSA student placed first for "Individual Written Problem" at the Illinois State Future Problem Solving Bowl, and placed third in that category at the International Future Problem Solving Bowl.

IMSA Mathletes won the championship of the North Suburban Math League for the 1997-98 season. Several IMSA students were honored for perfect scores at various levels, and one IMSA student earned the only perfect score at the senior level.

Eleven IMSA students participated in the Illinois Music Educators' Association All-State Conference in the Chorus, Honors Chorus, Honors Orchestra, and/or Honors Band.

One IMSA student placed fifth in the Westinghouse Science Talent Search and won a \$15000 scholarship.

IMSA's Dance Squad won first place in the state in the pom category at the Half-Time Illinois Competition, an IHSA-sanctioned organization.

29 IMSA students attended Model UN in New York. An IMSA sophomore won an award for his essay on the future of the United Nations and became the fourth student from IMSA to make an address at the United Nations.

Eight IMSA students attended the American Association for the Advancement of Science (AAAS) 1998 meeting and exposition held in Philadelphia in February. This group represented Illinois before the American Junior Academy of Science (AJAS). IMSA students gave ten minute oral presentations and set-up poster exhibits.

An IMSA student was one of only two students from Illinois selected to be a 1998 Presidential Scholar by The White House Commission on Presidential Scholars.

An IMSA student received the Student Intern Award from the Elizabeth Glaser Pediatric AIDS Foundation.

An IMSA student was one of 24 in the nation to qualify for training in the 1998 U.S.A. Mathematical Olympiad.

A team of IMSA students captured first place in overall points (Division A) in this year's national Mandelbrot Competition. More than 100 schools from across the United States and several foreign countries participated.

An IMSA student was one of 16 students in the nation selected to be a member of the U.S. Computing Team.

Six projects by IMSA students received superior ratings at the 12th Annual Illinois History Exposition. Two of the projects qualified for National History Day competition; one took Best Project in the Women's Labor History category at National History Day.

A team of IMSA students captured first place in Illinois and seventh place nationally at the spring Knowledge Master Open competition.

Two IMSA students were among 20 from the Chicago area selected to attend the Inaugural National Youth Leadership Mission to the U.S. Holocaust Memorial Museum in Washington, DC.



## Class of 1998

College	A	EN
American University.....	1.....	0
Amherst College.....	4.....	0
Augustana College.....	5.....	1
Babson College.....	1.....	0
Ball State University.....	1.....	0
Barnard College.....	1.....	1
Bates College.....	2.....	0
Beloit College.....	2.....	0
Benedictine University.....	1.....	0
Boston University.....	14.....	3
Bowdoin College.....	2.....	0
Bradley University.....	7.....	4
Brandeis University.....	3.....	0
Brown University.....	5.....	1
Bryn Mawr College.....	1.....	0
Bucknell University.....	2.....	2
Butler University.....	1.....	0
California Institute of Technology.....	3.....	2
Carleton College.....	8.....	4
Carnegie Mellon University.....	6.....	2
Carthage College.....	1.....	0
Case Western Reserve University.....	15.....	3
Catholic University of America.....	1.....	0
Claremont McKenna College.....	2.....	2
Clemson University.....	1.....	0
Colby College.....	1.....	0
Colgate University.....	1.....	0
College of William and Mary.....	2.....	0
Colorado College.....	2.....	1
Columbia College.....	1.....	0
Columbia University.....	1.....	1
Cooper Union.....	1.....	1
Cornell College.....	4.....	1
Cornell University.....	12.....	5
Creighton University.....	1.....	0
Dartmouth College.....	3.....	0
Davidson College.....	1.....	0
Deep Springs College.....	1.....	0
DePaul University.....	4.....	1
Drake University.....	1.....	1
Duke University.....	11.....	2
Earlham College.....	2.....	0
Eastern Illinois University.....	1.....	1
Eckerd College.....	1.....	0
Embry-Riddle Aeronautical University.....	1.....	0
Emory University.....	9.....	0
Florida A&M University.....	1.....	0
Florida Institute of Technology.....	3.....	2
Florida State University.....	3.....	0
Franklin and Marshall College.....	1.....	0
George Washington University.....	7.....	2
Georgetown University.....	2.....	1
Georgia Institute of Technology.....	2.....	0
Grand Valley State University.....	1.....	0
Grinnell College.....	3.....	0
Guilford College.....	1.....	0

College	A	EN
Harvard and Radcliffe Colleges.....	5.....	4
Harvey Mudd College.....	4.....	1
Hawaii Pacific University.....	1.....	0
Illinois Institute of Technology.....	5.....	0
Illinois Wesleyan University.....	7.....	1
Indiana University.....	3.....	0
Iowa State University.....	6.....	0
Johns Hopkins University.....	10.....	3
Kalamazoo College.....	1.....	0
Kenyon College.....	1.....	0
Knox College.....	11.....	4
Lake Forest College.....	1.....	1
Lawrence University.....	3.....	0
Lewis & Clark College.....	3.....	0
Loyola University.....	3.....	0
Loyola University of New Orleans.....	1.....	1
Macalester College.....	4.....	1
Marquette University.....	2.....	0
Marymount Manhattan College.....	1.....	0
Massachusetts Institute of Technology.....	11.....	4
McKendree College.....	1.....	0
Miami University.....	1.....	1
Michigan State University.....	12.....	1
Millikin University.....	2.....	1
Monmouth College.....	1.....	1
New York University.....	5.....	2
North Carolina State University.....	3.....	0
Northeastern Ohio University.....	1.....	0
Northern Illinois University.....	1.....	1
Northwestern University.....	39.....	8
Oberlin College.....	4.....	1
Occidental College.....	2.....	0
Ohio State University.....	2.....	0
Old Dominion University.....	1.....	0
Pennsylvania State University.....	1.....	0
Pomona College.....	3.....	0
Princeton University.....	2.....	1
Purdue University.....	11.....	3
Quincy University.....	2.....	0
Randolph-Macon Woman's College.....	1.....	1
Reed College.....	3.....	0
Rensselaer Polytechnic Institute.....	2.....	0
Rhodes College.....	3.....	0
Rice University.....	10.....	4
Ripon College.....	1.....	0
Rochester Institute of Technology.....	1.....	1
Rollins College.....	1.....	0
Rose-Hulman Institute of Technology.....	4.....	0
Sarah Lawrence College.....	1.....	0
Scripps College.....	1.....	1
Southampton College.....	1.....	0
Southern Illinois University.....	4.....	0
St. John's College.....	2.....	1
St. John's University.....	1.....	0
St. Louis University.....	3.....	1
Stanford University.....	9.....	5

College	A	EN
State University of New York - Purchase.....	1.....	0
Swarthmore College.....	2.....	1
Syracuse University.....	2.....	1
Transylvania University.....	1.....	0
Truman State University.....	4.....	0
Tufts University.....	1.....	0
Tulane University.....	13.....	4
Tuskegee University.....	1.....	1
Union College.....	1.....	0
University of California-Berkeley.....	5.....	4
University of California-Davis.....	1.....	0
University of California-Los Angeles.....	1.....	0
University of California-Riverside.....	1.....	1
University of California-Santa Barbara.....	1.....	0
University of California-Santa Cruz.....	1.....	0
University of Central Florida.....	1.....	0
University of Chicago.....	26.....	7
University of Colorado-Boulder.....	1.....	0
University of Connecticut.....	1.....	0
University of Delaware.....	1.....	1
University of Evansville.....	2.....	0
University of Illinois-Chicago.....	29.....	20
University of Illinois-Urbana.....	143.....	35
University of Indianapolis.....	1.....	0
University of Iowa.....	10.....	1
University of Kentucky.....	1.....	0
University of Miami.....	5.....	0
University of Michigan.....	14.....	2
University of Minnesota.....	1.....	0
University of Missouri-Columbia.....	2.....	0
University of Missouri-Kansas City.....	3.....	0
University of Missouri-Rolla.....	4.....	1
University of New Jersey-Rutgers.....	1.....	0
University of North Carolina-Chapel Hill.....	2.....	0
University of Notre Dame.....	2.....	2
University of Pennsylvania.....	5.....	2
University of Pittsburgh.....	2.....	0
University of Redlands.....	1.....	1
University of Rochester.....	7.....	1
University of Southern California.....	18.....	3
University of Texas-Austin.....	1.....	1
University of Virginia.....	4.....	0
University of Wisconsin-Madison.....	12.....	0
University of Wisconsin-Milwaukee.....	1.....	0
Valparaiso University.....	2.....	1
Vanderbilt University.....	6.....	2
Vassar College.....	1.....	0
Wake Forest University.....	2.....	0
Washington and Lee University.....	1.....	0
Washington University.....	38.....	6
Wellesley College.....	1.....	0
Western Illinois University.....	1.....	0
Whitman College.....	1.....	0
Willamette University.....	1.....	0
Williams College.....	6.....	1
Yale University.....	3.....	3

A = Accepted EN = Enrolled